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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/527,374	03/10/2005	James R Beckman	Ariz-10665	5724
7590	01/13/2009		EXAMINER	
DAVID S. HARPER			SHUMATE, ANTHONY R	
McDONNELL BOEHNEN HULBERT & BERGHOFF LLP				
300 SOUTH WACKER DRIVE			ART UNIT	PAPER NUMBER
SUITE 3100			1797	
CHICAGO, IL 60606				
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			01/13/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/527,374	<b>Applicant(s)</b> BECKMAN, JAMES R
	<b>Examiner</b> ANTHONY SHUMATE	<b>Art Unit</b> 1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 28 October 2008.
- 2a) This action is FINAL.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 1-11 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 12-20 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 27 November 2006 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-166/08)  
 Paper No(s)/Mail Date 2 December 2005
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_
- 5) Notice of Informal Patent Application
- 6) Other: \_\_\_\_\_

**DETAILED ACTION**

***Summary***

1. This is the initial Office action based on the 10/527,374 application filed 10 March 2005.
2. The preliminary amendment filed 10 March 2005 has been entered and fully considered.
3. Claims 1-20 are pending, and claims 1-11 are withdrawn from consideration. Also, elected claims 12-20 have been fully considered.

***Information Disclosure Statement***

4. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.
5. The information disclosure statement filed 2 December 2005 fails to comply with 37 CFR 1.98(a)(1), which requires the following: (1) a list of all patents, publications, applications, or other information submitted for consideration by the Office; (2) U.S. patents and U.S. patent application publications listed in a section separately from citations of other documents; (3) the application number of the application in which the

information disclosure statement is being submitted on each page of the list; (4) a column that provides a blank space next to each document to be considered, for the examiner's initials; and (5) a heading that clearly indicates that the list is an information disclosure statement. The information disclosure statement has been placed in the application file, but the information referred to therein has not been considered.

***Election/Restrictions***

6. Applicant's election of Group II, claims 12-20 drawn to a continuous contacting apparatus for exchanging heat released by a desiccant in the reply filed on 28 October 2008 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

***Drawings***

7. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

8. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the numerous reference characters not mentioned in the description. Each failure of reference characters not mentioned in the description will not be detailed because of the high occurrence of this failure. Example of this failure are "92" and "FD" at figure 1. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

9. In addition to Replacement Sheets containing the corrected drawing figure(s), applicant is required to submit a marked-up copy of each Replacement Sheet including annotations indicating the changes made to the previous version. The marked-up copy must be clearly labeled as "Annotated Sheets" and must be presented in the amendment or remarks section that explains the change(s) to the drawings. See 37

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CFR 1.121(d)(1). Failure to timely submit the proposed drawing and marked-up copy will result in the abandonment of the application.

10. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 310b2 at page 17 lines 20-30. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

11. The drawings are objected to because figure 5 and figure 6 are illegible due to excessive shading. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the

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replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

12. Claims 12-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 12 recites the limitation "the heat producing chamber" in a common heat transfer wall capable of providing thermal communication between the heat-releasing chamber and the heat producing chamber. There is insufficient antecedent basis for this limitation in the claim.

13. Claim 19 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 19 describes a heat exchanger situated between the heat releasing chamber and the desiccant **regenerated**, which is indefinite. Since, Applicant's invention appears to have a heat releasing chamber containing desiccant **regenerated**, and Applicant's invention appears to have a heat exchanger containing desiccant **regenerated**. Therefore, a heat exchanger cannot be situated between the heat releasing chamber and the desiccant **regenerated**. For examining purposes only, the Examiner will assume that the desiccant **regenerated** is a spelling error, and the Applicant intended to describe at claim 19 a heat exchanger situated between the heat releasing chamber and the desiccant **regenerator**.

***Claim Rejections - 35 USC § 102***

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

15. Claims 12-16 are rejected under 35 U.S.C. 102(b) as being anticipated by PAULSON et al. (US 3,261,145).

For instant **claim 12**, PAULSON et al. teaches at column 1 lines 1-70, column 3 lines 35-75, figure 2, and figure 3 a adsorption chamber (24) (heat-releasing chamber) having an inlet and an discharge (outlet) for a gas with moisture (at least partially saturated with a component absorbable by a

desiccant). Also, PAULSON et al. teaches at column 1 lines 1-70, column 3 lines 35-75, figure 2, and figure 3 the desiccant material thereby acting to absorb the moisture from the gas stream. Additionally, PAULSON et al. teaches at column 1 lines 1-70, column 3 lines 35-75, figure 2 and figure 3 the saturated gas to be conditioned is continuously circulated into the adsorption chamber (24).

Also for instant **claim 12**, PAULSON et al. teaches at column 1 lines 1-70, column 3 lines 35-75, column 4 lines 50-75, figure 2, and figure 3 a adsorption chamber (24) (heat-releasing chamber) having an inlet and an outlet for a desiccant.

Additionally for instant **claim 12**, PAULSON et al. does not specifically teach a annular water jacket 36 (heat-absorbing chamber) having an inlet and an outlet for a **gas** (fluid) to conduct away any heat generated (to be heated), but PAULSON et al. teaches at column 1 lines 1-70, column 3 lines 35-75, column 4 lines 50-75, figure 2 and figure 3 a annular water jacket 36 (heat-absorbing chamber) having an inlet and an outlet for **water** (fluid) to conduct away any heat generated (to be heated). Therefore, the jacket of PAULSON et al. is structurally capable of having an inlet and an outlet for a **gas**.

If the prior art structure is capable of performing the intended use, then it meets the claim. Apparatus claims must be structurally distinguishable from the prior art in terms of structure, not function. The manner of operating an apparatus does not differentiate an apparatus claim from the prior art, if the prior art

apparatus teaches all of the structural limitations of the claim (see MPEP § 2114 & § 2173.05(g)).

[KONZ et al. (US 3,950,789) provides extrinsic evidence at the abstract that a cooling jacket is structurally capable of having a gas.]

Also for instant **claim 12**, PAULSON et al. teaches at column 1 lines 1-70, column 3 lines 35-75, column 4 lines 50-75, figure 2 and figure 3 a substantial portion of the cylindrical part of the adsorption chamber (25) (common heat transfer wall) capable of conducting away any heat generated.

What's more for instant **claim 12**, PAULSON et al. teaches at column 1 lines 1-70, column 3 lines 35-75, column 4 lines 50-75, column 7 lines 25-65, figure 2 and figure 3 a reactivation chamber (48) (desiccant regenerator) having an inlet and an outlet, wherein the outlet provides a regenerated desiccant stream to the desiccant inlet (via transfer tube 116) of the adsorption chamber (24) (heat-releasing chamber).

Finally for instant **claim 12**, PAULSON et al. teaches at column 1 lines 1-70, column 3 lines 35-75, column 4 lines 50-75, column 7 lines 5-65, figure 2 and figure 3 wherein the inlet receives desiccant which as adsorbed moisture (spent desiccant stream) from the desiccant outlet of the adsorption chamber (24) (heat-releasing chamber).

July 19, 1966

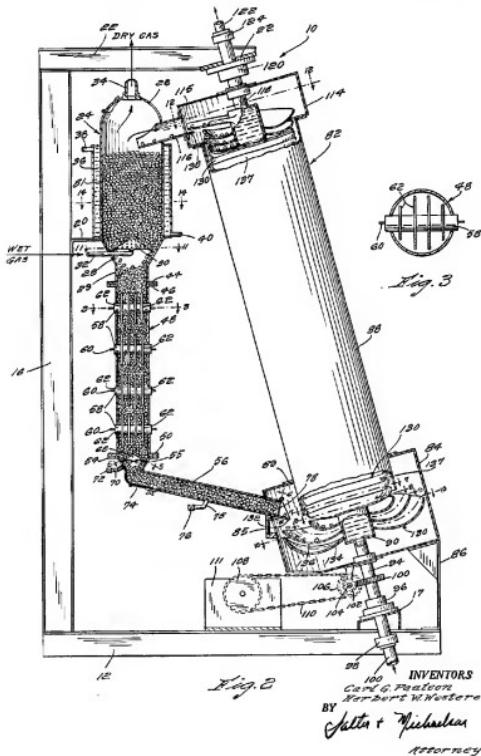
C. G. PAULSON ET AL.

3,261,145

METHOD AND APPARATUS FOR CONTINUOUSLY TREATING A GAS STREAM

Filed Sept. 26, 1962

3 Sheets-Sheet 2



For instant **claim 13**, PAULSON et al. teaches at column 1 lines 1-70, column 3 lines 35-75, column 4 lines 50-75, figure 2 and figure 3 wherein the desiccant inlet of the adsorption chamber (24) (heat-releasing chamber) is situated to place the desiccant onto the walls which conduct away any heat generated (i.e. heat-releasing side) of the substantial portion of the cylindrical part of the adsorption chamber (25) (common heat transfer wall).

For instant **claim 14**, PAULSON et al. teaches at column 1 lines 1-70, column 3 lines 35-75, column 4 lines 50-75, figure 2 and figure 3 an inlet and an outlet in the water jacket 36 (heat-absorbing chamber) for water (a liquid having a component evaporable into the gas). Also, the instant specification describes at page 12 lines 10-16 a liquid component evaporable into the air, such as feed water.

For instant **claim 15**, PAULSON et al. teaches at column 1 lines 1-70, column 3 lines 35-75, column 4 lines 50-75, figure 2 and figure 3 wherein the inlet for the water (the liquid having the evaporable component) is situated to place the water (liquid) onto the walls which conduct away any heat generated (heat-absorbing side) of the substantial portion of the cylindrical part of the adsorption chamber (25) (common heat transfer wall). Also, the instant specification describes at page 12 lines 10-16 a liquid component evaporable into the air, such as feed water.

For instant **claim 16**, PAULSON et al. teaches at column 1 lines 1-70, column 3 lines 35-75, column 4 lines 50-75, column 7 lines 5-65, figure 2 and figure 3 wherein the reactivation chamber (48) (desiccant regenerator) applies heat to the desiccant which as adsorbed moisture (spent desiccant stream) for regeneration.

16. Claims 12, 18, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by CRAWFORD (US 2,433,741).

For instant **claim 12**, CRAWFORD teaches at column 1 lines 1-5, column 4 lines 20-50, figure 1 and figure 2 a dehumidifying chamber (20) (heat-releasing chamber) having an inlet (21) and an outlet (24) for air with water (a gas at least partially saturated with a component absorbable by a desiccant). Also, the instant specification describes at page 12 lines 10-16 a liquid component evaporable into the air, such as feed **water**.

Additionally for instant **claim 12**, CRAWFORD does not specifically teach a heat exchanger 6 (heat-absorbing chamber) having an inlet and an outlet for **gas** to cool the concentrated brine (i.e. fluid (**gas**) to be heated). But, CRAWFORD teaches at column 1 lines 1-5, column 4 lines 20-50, figure 1 and figure 2 a heat exchanger 6 (heat-absorbing chamber) having an inlet and an outlet for **water** to cool the concentrated brine (i.e. fluid (**water**) to be heated).

Therefore, the heat exchanger 6 of CRAWFORD is structurally capable of having an inlet and an outlet for a **gas**.

If the prior art structure is capable of performing the intended use, then it meets the claim. Apparatus claims must be structurally distinguishable from the prior art in terms of structure, not function. The manner of operating an apparatus does not differentiate an apparatus claim from the prior art, if the prior art apparatus teaches all of the structural limitations of the claim (see MPEP § 2114 & § 2173.05(g)).

[HERRELL et al. (US 4,777,560) provides extrinsic evidence at the title and the abstract that a heat exchanger is structurally capable of having an inlet and an outlet for a gas.]

Additionally for instant **claim 12**, CRAWFORD teaches at column 1 lines 1-5, column 4 lines 20-50, figure 1 and figure 2 a pipe 17 (common heat transfer wall) where it is cooled (capable of providing thermal communication).

Furthermore for instant **claim 12**, CRAWFORD teaches at column 1 lines 1-5, column 4 lines 20-50, column 6 lines 35-65, figure 1 and figure 2 a brine concentrator chamber 45 (desiccant regenerator) having a brine spray 50 (an inlet) and an outlet (54).

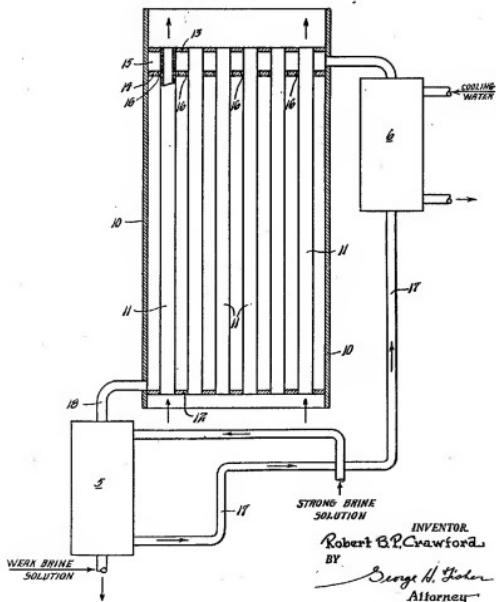
As well for instant **claim 12**, CRAWFORD teaches at column 1 lines 1-5, column 4 lines 20-50, column 5 lines 15-30, column 6 lines 35-65, figure 1 and figure 2 wherein the brine concentrator chamber 45 (desiccant regenerator) outlet 54 provides a concentrated brine (regenerated desiccant) stream to the

brine sprays 28 (a desiccant inlet via pipe 36) of the dehumidifying chamber 20 (heat-releasing chamber).

Moreover for instant **claim 12**, CRAWFORD teaches at column 1 lines 1-5, column 4 lines 20-50, column 5 lines 15-30, column 6 lines 35-65, figure 1 and figure 2 wherein the brine concentrator chamber 45 (desiccant regenerator) having a spray 50 (an inlet) receives weak brine solution (spent desiccant stream) from the sump 30 (desiccant outlet) of the dehumidifying chamber 20 (heat-releasing chamber).

Dec. 30, 1947. R. B. P. CRAWFORD 2,433,741  
CHEMICAL DEHUMIDIFYING METHOD AND MEANS  
Filed Feb. 13, 1943 2 Sheets-Sheet 1

Fig. 1.



Dec. 30, 1947.

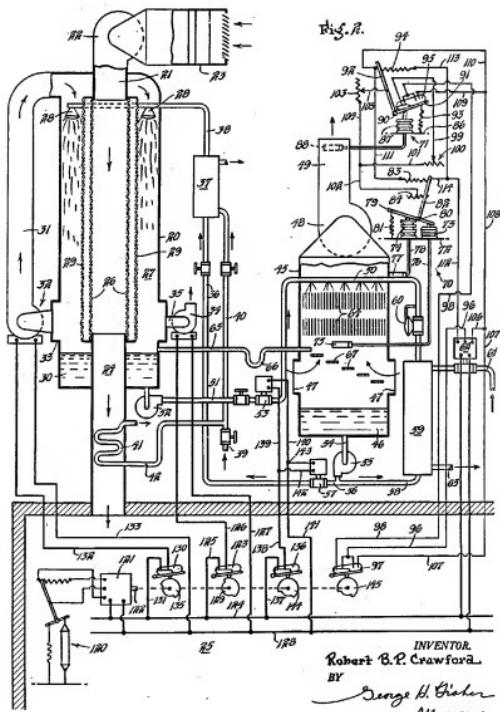
R. B. P. CRAWFORD

2,433,741

CHEMICAL DEHUMIDIFYING METHOD AND MEANS

Filed Feb. 13, 1943

2 Sheets-Sheet 2



For instant **claim 18**, CRAWFORD teaches at column 1 lines 1-5, column 4 lines 20-50, column 5 lines 15-30, column 6 lines 35-65, column 7 lines 1-30, figure 1 and figure 2 wherein the brine concentrator chamber 45 (desiccant regenerator) contacts the weak brine (spent desiccant) with outside (ambient) air for concentrating (regeneration).

For instant **claim 19**, CRAWFORD teaches at column 1 lines 1-5, column 4 lines 5-50, column 5 lines 15-30, column 6 lines 35-65, column 7 lines 1-30, figure 1 and figure 2 a heat exchanger 5 situated between the chamber 10 (similarly chamber 45) (heat releasing chamber) and the brine concentrator (desiccant regenerator), and the heat exchanger 5 where heat is given up by the hot concentrated brine in pipe 17 to the cooler weakened brine in pipe 18 (transferring heat from the spent desiccant stream (weakened brine) to the regenerated desiccant stream (concentrated brine)).

***Claim Rejections - 35 USC § 103***

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over PAULSON et al. (US 3,261,145) in view of RUSH et al. (US 3,889,742).

For instant claims 17 and 18, PAULSON et al. does not specifically teach wherein the desiccant regenerator contacts the spent desiccant with heated air for regeneration. But, PAULSON et al. does teach at column 1 lines 1-70, column 3 lines 35-75, column 4 lines 1-75, column 7 lines 5-65, figure 2 and figure 3 wherein the reactivation chamber (48) (desiccant regenerator) contacts the desiccant which as adsorbed moisture (spent desiccant stream) with heat from heating coils (60) for regeneration. Also, RUSH et al. teaches at the abstract and column 2 lines 15-50 the technique of contacting a desiccant with a heated air (ambient air) stream for regeneration. So, it would have been obvious case of simple substitution to one having ordinary skill in the art at the time the invention was made to substitute the heating coils of PAULSON et al. with the heated air (ambient air) of RUSH et al.

19. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over PAULSON et al. (US 3,261,145) in view of MAGER et al. (US 4,999,034 A).

For instant claim 20, PAULSON et al. does not specifically teach wherein the desiccant is calcium chloride. But, PAULSON et al. does teach at column 1 lines 1-70, column 3 lines 35-75, column 4 lines 1-75, column 7 lines 5-65, figure 2 and figure 3 desiccants in general. Also, MAGER et al. teaches at column 3 lines 15-25 that calcium chloride is a well known desiccant. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention

was made to provide the well known calcium chloride desiccant of MAGER et al. for the desiccant of PAULSON et al.

***Conclusion***

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTHONY SHUMATE whose telephone number is (571)270-5546. The examiner can normally be reached on M-Th 9-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571)272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A.S./  
Examiner Art Unit 1797

/Duane S. Smith/  
Supervisory Patent Examiner, Art  
Unit 1797  
1-12-09

Application/Control Number: 10/527,374

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